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| 10/816,471 | 04/01/2004 | Michael A. Wolf | AZULP003 | 8395 |
| 21912 | 7590 | 11/03/2006 | | |
| VAN PELT, YI & JAMES LLP 10050 N. FOOTHILL BLVD #200 CUPERTINO, CA 95014 | | | | |
| | | | EXAMINER BATAILLE, PIERRE MICHE | |
| | | | ART UNIT 2186 | PAPER NUMBER |

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/816,471

Applicant(s)

WOLF ET AL.

Examiner

Pierre-Michel Bataille

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 6-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The instant Office Action is taken in response to applicant's communication filed August 14, 2006 responding to Non-Final Rejection dated March 29, 2006. Applicant's amendments and/or arguments have been considered with the results that follow.
2. All Claims 1-38 remain pending in the application under prosecution.

Response to Arguments

3. Applicant's arguments with respect to claims 21, 29, and 30 have been fully considered, but are not deemed to be persuasive for at least the following remarks.

Applicant argues that claim 21 requires receiving status information of a plurality of processes. It is respectfully submitted that this feature corresponds to (see US 2002/0091904, Haggar, section 0025) "The heap 34 may be configured as a portion of the memory 24 that is reserved for use by the Java application program(s) 36 for the temporary storage of data and/or information whose existence or size may not be able to be determined until the program(s) execute". This explains that the program execution triggers the status of the memory availability corresponding to the program. Haggar explains (section 0022) that FIG. 2, the memory 24 may hold at least four major categories of software and data: the operating system 28, the Java Virtual Machine (JVM) 32, the heap 34, and the Java application program(s) 36 where the JVM 32 may

include a heap memory allocation module 38 and a garbage collection module 42. this clearly shows the management of the memory among the plurality of processes.

In view of these remarks, the rejection with respect to claims 21-30 is maintained. Please refer to Office Action mailed March 29, 2006 for details.

4. Applicant's arguments with respect to amended independent claims 1, 19, 20, 31, 37, and 38, and corresponding dependent claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4 and 6-37 are rejected under 35 U.S.C. 102(a) as being anticipated by US 2004/0060041 (Demsey et al).

With respect to claim 1 and corresponding independent claims 19 and 20, Demsey discloses memory management system, method and computer readable

program product for managing memory, computer readable program product being embodied in computer readable medium and comprising computer instructions **(memory manager being responsible for maintaining the garbage collection pools)** for:

maintaining a memory pool **(each application domain 320 and 322 includes a plurality of code pools (e.g., code pool 324) and a plurality of garbage collection pools (e.g., garbage collection pool 334))**;

specifying a specified amount of memory in the memory pool for allocation for a memory-requesting process **(memory manager 316 being responsible for maintaining the garbage collection pools, the memory manager 316 including an allocator 317 being responsible for allocating memory from the available memory)**;

requesting a memory-releasing process to release a requested amount of memory in the memory pool **(the memory manager 316 including a garbage collector 319, the garbage collector 319 is responsible for releasing garbage collection pools and code pools)**;

wherein the memory-requesting process is not necessarily the same process as the memory-releasing process **(memory manager 316 including an allocator 317 being responsible for allocating memory from the available memory and a garbage collector 319 being responsible for allocating memory from the available memory)**. [See paragraph 0028, abstract, and Fig. 3.]

With respect to claim 31 and corresponding independent claims 37 and 38, Demsey discloses memory management system, method and computer readable program product for managing memory, computer readable program product being embodied in computer readable medium and comprising computer instructions **(memory manager being responsible for maintaining the garbage collection pools)**, comprising:

determining an appropriate amount of committed memory in a memory pool **(code pool manager 314 being responsible for identifying code pools that may be pitched and any remaining portion of system memory heap 304 is designated as available system memory heap 306)**;

maintaining the memory pool **(each application domain 320 and 322 includes a plurality of code pools (e.g., code pool 324) and a plurality of garbage collection pools (e.g., garbage collection pool 334))**;

determining that an amount of memory in the memory pool is required for allocation **(any remaining portion of system memory heap 304 is designated as available system memory heap 306)**; and

allocating the required amount of memory from an uncommitted portion of the memory pool to a process **memory manager 316 including an allocator 317 being responsible for allocating memory from the available memory, the available memory 306 is free memory that can be allocated by the**

application domains for additional code pools and garbage collection pools). [See Paragraph 0028, abstract, and Fig. 3.]

With respect to claim 21 and corresponding independent claims 29 and 30, Demsey discloses memory management system, method and computer readable program product for managing memory, computer readable program product being embodied in computer readable medium and comprising computer instructions ***(memory manager being responsible for maintaining the garbage collection pools)***, comprising:

maintaining a memory pool ***(each application domain 320 and 322 includes a plurality of code pools (e.g., code pool 324) and a plurality of garbage collection pools (e.g., garbage collection pool 334))***;

receiving status information from a plurality of processes ***(identifying code pools from application domains 320 and 322 that may be pitched)***; and

managing memory among the plurality of processes using the status information ***(identifying any remaining portion of system memory heap 304 is designated as available system memory heap 306, the available memory 306 being free memory that can be allocated by the application domains for additional code pools and garbage collection pools)***. [See Paragraph 0028, Fig. 3; and abstract].

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With respect to claims 2-4, 6-18, 22-28, and 32-36, Demsey discloses the invention (abstract; Fig. 3, par. 0028-0029 & 41) wherein:

the releasing process operates in a garbage collection environment;

the memory releasing process is a Java program,

the memory pool includes reserve memory (*a list of live application domains that will be used by the garbage collection process when determining which code pools to pitch*),

the memory pool includes memory owned by a plurality of processes (*a list of live application domains that will be used by the garbage collection process when determining which code pools to pitch*),

the memory pools include a plurality of sub-pools (*memory heap including a plurality of memory pools, a list of live application domains that will be used by the garbage collection process*),

the allocator determining that a specified amount of memory is required for allocation;

a monitored process determining process requiring additional memory, detecting a rate of garbage collection for the monitored process

a monitored process detecting a rate of garbage collection,

memory releasing process selecting process for release based on status information;

the memory releasing process releasing a requested amount by making a system call (*requests for garbage collection, user request for garbage collection, an*

application domain moving to a background state to allow another application domain to become active);

the requested amount of memory is free memory (available memory 306 being free memory that can be allocated by the application domains for additional code pools and garbage collection pools);

the specified amount of memory is approximately equal to the requested amount of memory;

a sub-pool of a memory pool is refilled with the requested amount of memory released (a list of live application domains that will be used by the garbage collection process when determining which code pools to pitch). [See abstract; Fig. 3, par. 0028-0029 & 41.]

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Applicant's amendment to claims 1, 19, 20, 31, 37, and 38, and corresponding dependent claims 2-18 and 32-36 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre-Michel Bataille whose telephone number is (571) 272-4178. The examiner can normally be reached on Mon-Fri (8:00A to 4:30P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew M. Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Pierre-Michel Bataille
Primary Examiner
Art Unit 2186

October 27, 2006

PIERRE BATAILLE
PRIMARY EXAMINER